

PRELIMINARY AMENDMENT

Serial Number: Unknown

Filing Date: Herewith

Title: Integrated Core Microelectronic Package

Assignee: Intel Corporation

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CLAIMS

Please amend the claims as follows:

Claims 1-8 (Canceled)

9. (Original) A method of fabricating a microelectronic package, comprising:
providing a microelectronic package core having a first surface and an opposing second surface, said microelectronic package core having at least one opening defined therein extending from said microelectronic package core first surface to said microelectronic package core second surface;

disposing at least one microelectronic die within said at least one opening, said at least one microelectronic die having an active surface; and

adhering said microelectronic package core to said at least one microelectronic die with an encapsulation material.

10. (Currently Amended) The method of claim 9, wherein adhering said microelectronic package core to said at least one microelectronic die with said encapsulation material further includes forming at least one encapsulation material surface substantially planar to said microelectronic die active surface and said microelectronic package core first surface.

11. (Currently Amended) The method of claim 10, further including:
forming at least one first dielectric material layer on at least a portion of said microelectronic die active surface, said at least one encapsulation material surface, and said microelectronic package core first surface;

forming at least one via through said at least one first dielectric material layer to expose a portion of said microelectronic die active surface; and

forming at least one first conductive trace on said at least one first dielectric material layer which extends into said at least one via to electrically contact said microelectronic die

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active surface.

12. (Currently Amended) The method of claim 11, further including forming at least one second ~~additional~~ dielectric material layer disposed over said at least one first conductive trace and said at least one first dielectric material layer.

13. (Currently Amended) The method of claim 12, further including forming at least one second ~~additional~~ conductive trace to extend through and reside on said at least one second ~~additional~~ dielectric material layer.

14. (Original) The method of claim 9, wherein said providing said microelectronic package core comprises providing a microelectronic package core selected from the group consisting of bismaleimide triazine resin based material, an FR4 material, polyimides, ceramics, and metals.

15. (Original) A method of fabricating a microelectronic package, comprising: providing a microelectronic package core having a first surface and an opposing second surface, said microelectronic package core having at least one opening defined therein extending from said microelectronic package core first surface to said microelectronic package core second surface;

abutting a protective film against said microelectronic package core first surface, wherein said protective film spans said at least one opening;

disposing at least one microelectronic die within said at least one opening, wherein an active surface of said microelectronic die abuts a portion of said protective film;

adhering said microelectronic package core to said at least one microelectronic die with an encapsulation material, wherein a portion of said encapsulation material fills a portion of said opening to form at least one encapsulation material surface abutting said protective film; and

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removing said protective film.

16. (Currently Amended) The method of claim 15, further including:

forming at least one first dielectric material layer on at least a portion of said microelectronic die active surface, said at least one encapsulation material surface, and said microelectronic package core first surface;

forming at least one via through said at least one first dielectric material layer to expose a portion of said microelectronic die active surface; and

forming at least one first conductive trace on said at least one first dielectric material layer which extends into said at least one via to electrically contact said microelectronic die active surface.

17. (Currently Amended) The method of claim 16, further including forming at least one second ~~additional~~ dielectric material layer disposed over said at least one first ~~on~~ conductive trace and said at least one first dielectric material layer.

18. (Currently Amended) The method of claim 17, further including forming at least one second ~~additional~~ conductive trace to extend through and reside on said at least one second ~~additional~~ dielectric material layer.

19. (Original) The method of claim 15, wherein said providing said microelectronic package core comprises providing a microelectronic package core selected from the group consisting of bismaleimide triazine resin based material, an FR4 material, polyimides, ceramics, and metals.

20. (Original) The method of claim 15, wherein said abutting said protective film includes abutting said protective film having an adhesive against said microelectronic package

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core first surface.

21. (Original) A method of fabricating a microelectronic package, comprising:
providing a microelectronic package core having a first surface and an opposing second surface, said microelectronic package core having a plurality of openings defined therein extending from said microelectronic package core first surface to said microelectronic package core second surface;
abutting a protective film against said microelectronic package core first surface, wherein said protective film spans said at least one opening;
disposing a plurality of microelectronic dice within corresponding openings of the microelectronic package core, wherein active surfaces of each of said microelectronic dice abuts a portion of said protective film;
adhering said microelectronic package core to said plurality of microelectronic dice with an encapsulation material, wherein a portion of said encapsulation material fills a portion of said openings to form a plurality of encapsulation material surfaces abutting said protective film;
removing said protective film; and
singulating each microelectronic die by cutting through said microelectronic package core.

22. (Original) The method of claim 21, further including:
forming build-up layers on at least a portion of said microelectronic dice active surfaces, said plurality of encapsulation material surfaces, and said microelectronic package core first surface.

23. (Original) The method of claim 21, wherein said providing said microelectronic package core comprises providing a microelectronic package core selected from the group consisting of bismaleimide triazine resin based material, an FR4 material, polyimides,

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ceramics, and metals.

24. (Original) The method of claim 21, wherein abutting said protective film includes abutting said protective film having an adhesive against said microelectronic package core first surface.

25. (New) A method of fabricating a microelectronic package, comprising:
providing a microelectronic package core having a first surface and an opposing second surface, said microelectronic package core having at least one opening defined therein extending from said microelectronic package core first surface to said microelectronic package core second surface, wherein the microelectronic package core includes a first thickness;

abutting a protective film against said microelectronic package core first surface, wherein said protective film spans said at least one opening;

disposing at least one microelectronic die within said at least one opening, wherein an active surface of said microelectronic die abuts a portion of said protective film, wherein the at least one microelectronic die includes a second thickness, and wherein the second thickness is greater than the first thickness;

adhering said microelectronic package core to said at least one microelectronic die with an encapsulation material, wherein a portion of said encapsulation material fills a portion of said opening to form at least one encapsulation material surface abutting said protective film; and
removing said protective film.

26. (New) The method of claim 25, wherein providing a microelectronic package core includes providing the microelectronic package core with a plurality of vias extending therethrough.

27. (New) The method of claim 25, wherein providing a microelectronic package

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core includes providing the microelectronic package core with a plurality of undercuts in the microelectronic package core first surface.

28. (New) The method of claim 25, wherein providing a microelectronic package core includes providing the microelectronic package core with a plurality of vias extending therethrough, and providing a plurality of undercuts in the microelectronic package core first surface.

29. (New) The method of claim 25 wherein providing a microelectronic package core includes at least one of:

providing the microelectronic package core with a plurality of vias extending therethrough; and

providing a plurality of undercuts in the microelectronic package core first surface, the method further including:

forming at least one first dielectric material layer on at least a portion of said microelectronic die active surface, said at least one encapsulation material surface, and said microelectronic package core first surface;

forming at least one via through said at least one first dielectric material layer to expose a portion of said microelectronic die active surface;

forming at least one first conductive trace on said at least one first dielectric material layer which extends into said at least one via to electrically contact said microelectronic die active surface;

forming at least one second dielectric material layer disposed over said at least one first conductive trace and said at least one first dielectric material layer; and

forming at least one second conductive trace to extend through and reside on said at least one second dielectric material layer.

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CONCLUSION

Claims 1-8 are canceled, claims 10-13, 16-18 are amended and claims 25-29 are added. Claims 9-29 are now pending in this application.

Support for amendment of originally presented claims comes from pages 8-11 and throughout the specification. Support for new claims 25-29 comes from FIG. 8, pages 8-11, claims 15-18, and throughout the specification.

The Examiner is invited to contact the Applicant's Representative, John Greaves (801-278-9171), or the below-signed attorney with any questions regarding the present application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully Submitted,

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